

duced by the warming action of the sun on the solid surface exposed to its rays. These special currents, although somewhat dangerous in making a descent, die out at an altitude of a few hundred feet. The superficial current experienced in the Algiers ascent was running eastwards, and was really a marine current produced by the vicinity of the sea. A peculiarity of this ascent was the presence of a fog, observed at a certain distance above the earth, in air which was coming from the water and had been rendered humid when crossing the Mediterranean Sea. The thermometer, which was only 23° centigrade on the ground, ascended gradually to 25° , and gave 38° and 40° when the balloon had traversed the fog. The maximum observed was 43° at a small altitude.

Clouds do not always prevent the rays of the sun from warming the atmosphere below to a certain extent. In an ascent executed at Avignon (Vaucluse) on the 6th, the thermometer exhibited a warming effect of 5° C., although the balloon had not passed through the clouds, which were at an elevation of more than 4,000 feet.

I do not think we should depend entirely for our knowledge on such points to elaborately organised ascents. As much of our knowledge of the sea has been obtained from the log-books of trading vessels, so by a little good management on the part of aeronautical societies, much important information concerning the atmosphere might be collected from balloonists who make ascents either for purposes of pleasure or profit.

W. DE FONVIELLE

NOTES

M. ANDRÉ, the head of the French Transit Expedition to New Caledonia, has arrived in Paris. His account of the observations will be read to the Academy on Monday week. Dr. Janssen is not expected to arrive in Paris before the 10th of June.

DR. HOOKER was present at Monday's sitting of the Paris Academy of Sciences, of which he is a correspondent in the section of Botany. M. Frémy, the president, noticed the fact, and Dr. Hooker was warmly received by all present.

WE remind the Fellows of the Royal Society of the Reception on the 26th inst., at their rooms in Burlington House, to which they have been invited.

INFORMATION has been received at the Admiralty, by telegram, stating that the *Challenger* will not visit Vancouver Island as intended, but will proceed to Nagasaki, Honolulu, and Valparaiso. Letters should be addressed to Honolulu until the middle of July, and after that date to Valparaiso.

THE French Aeronautical Society has elected for its president M. Paul Bert, the physiologist, who recently organised the fatal *Zenith* expedition. M. Bert has never ascended in a balloon, and has refused several times to do so. M. Tissandier, who had experienced so narrow an escape in the *Zenith*, was appointed one of the vice-presidents.

THE Spectacle Makers have resolved to confer the freedom of their Company on Sir George B. Airy, K.C.B., F.R.S., &c., Astronomer Royal.

WE learn from the Australian papers that an expedition for the exploration of New Guinea is being fitted out by Mr. Macleay, a wealthy citizen of Sydney. Important scientific results are expected to be gathered by this expedition, and Mr. Macleay is worthy of praise for devoting his wealth to so important an object. Notwithstanding that so many explorers are and have been on the island, there is a great deal yet to be done ere we can have anything like an adequate knowledge of its people, its physical condition, and natural history. We hope Mr. Macleay's expedition will attack a part of the island not hitherto explored, and add much that is new and valuable to our knowledge of a country so interesting in itself and in relation to the past of Australia.

THE Swedish Arctic Expedition to Novaya Zemlya, which will start at the beginning of next month from Tromsøe, will be occupied first with botanical, geological, and ethnological inquiries in the southern part of Novaya Zemlya, and then advance along the west coast to the northern point, which it expects to reach about the middle of August. Thence it will go to the north-east to explore this still quite unknown part of the Polar Sea, and then southwards to the mouths of the Obi and the Jenisei, where the country is geologically very interesting. If the ice creates no obstacles, Prof. Nordenskjöld will here quit the vessel, and go in a boat up the river, to return home afterwards by land.

THE February number of the *Proceedings* of the Asiatic Society of Bengal contains the President's Address. Colonel Hyde, among other important and interesting topics, refers to the scheme for providing Calcutta with a Zoological Garden, which, through various untoward circumstances, has been hitherto frustrated. The value of such an institution in Calcutta, if put on a rational footing, both to the European and native communities as well as to science, is undoubted, and we hope with Colonel Hyde that the scheme will have the attention both of the Imperial and Local Governments. Indeed, we believe that the Lieutenant-Governor of Bengal has taken up a piece of land suitable for the purpose. The question of the establishment of a Zoological Garden at Calcutta has been before the public and the Asiatic Society from time to time during the last thirty-five years, and it does seem strange that the capital of India should have been so long without such an institution.

ANOTHER subject referred to by the President in the above address is that of earth-current measurements, a committee in connection with which has been appointed at the suggestion of Mr. Schwendler. Considering the very great importance of research in this direction, "there can be no doubt," to quote the *Calcutta Englishman*, "that the Government of India would be fully justified in promoting the undertaking, just as it has assisted the observations of the Transit of Venus, of eclipses, and of meteorological phenomena."

AN unprecedented contest has taken place at the Académie Française in filling the seat vacated by the recent demise of M. Guizot. After four scrutinies, the election was postponed for six months. M. Dumas, the perpetual secretary of the Academy of Sciences, was a candidate, and had as an opponent M. Jules Simon, the former Minister of Public Instruction, an influential member of the Academy of Moral Sciences. But a third candidate, M. Laugel, the scientific reviewer of the *Temps*, and the private secretary of the Duc d'Aumale, having been proposed by his patron and voted by him throughout the four scrutinies, no result could be obtained, the nominations being only made on an absolute majority. M. Laugel has written a few philosophical essays on scientific matters, and is a man of knowledge, but is not known except to a limited circle of friends.

IT is said that thirty young Chinese belonging to influential families are expected very shortly in Paris, where they are to be educated. They are under the care of a French naval officer, who, having joined the Chinese navy, has been appointed Director of P'ow-chow Arsenal.

M. LEVERRIER has presented to the Academy of Sciences the observations on the transits of small planets made during the last three months at Greenwich and at Paris: the two Observatories are working conjointly in this department. Observations, limited to those asteroids which are near their apposition, have been made on twenty-two small planets; but the weather was so bad at both Observatories that only sixty-nine observations are recorded, sixty at Paris and nine at Greenwich. Generally the proportion is greater in favour of English observers, but the clouds were dreadfully against them during the last quarter.

WE are informed that Mr. Chadwick, M.P., brought with him from California, on his recent visit, a box of superior Californian silkworm eggs. We understand that he is anxious to distribute them to anyone having a supply of mulberry-leaves and wishing to cultivate them. The eggs have been entrusted to Mr. Loose, the secretary of the Chamber of Commerce, Macclesfield, from whom small quantities can be obtained on application. Mr. Loose has also prepared a few simple instructions for feeding and keeping the cocoons.

THE number of candidates at the recent General Examination for Women at the University of London was thirty-five. Of these, twenty have passed, viz., seven in honours, twelve in the first, and one in the second division.

PROF. J. SACHS, of Würzburg, is engaged in the preparation of a History of Botany, which is expected to be ready for publication in the course of the present year.

IN answer to a request made by the Paris *Figaro*, M. Dumas has given the following details of the alleged effective remedy against Phylloxera:—All remedies discovered up to the year 1874 had the disadvantage that while destroying the obnoxious insects they did considerable harm to the vine itself; the experiments lately made with sulpho-carbonate of potash were, however, perfectly successful, as they do not effect the vine in the least; they were made by M. Milne-Edwards, Du Chastre, Blanchard, Pasteur, Thénard, and Boulay, in different wine-growing districts, particularly in the environs of Avignon, Cognac, Montpellier, and Geneva. The sulpho-carbonates are strewn on the ground, the next rain helps them to penetrate the soil, and the Phylloxera are completely destroyed by them. These salts at present are still rather expensive, but in the districts where the Phylloxera have only just appeared a very small quantity is sufficient, and it is hoped that if Government undertakes a larger production of the salts, the price will be considerably reduced.

THE new Reptile House in the Jardin des Plantes, Paris, has sustained some heavy losses. A large turtle died from the shot it had received many months ago when captured in the Atlantic Ocean, and a large serpent from a wound inflicted by a rat. The rat having been offered as living food, resisted violently, and bit his adversary so deeply that he died a few days afterwards. The wardens in the picturesque Reptile House will probably be more cautious in future in showing visitors the spectacle of Ophidians running after their food.

WE are glad to say, however, that the above heavy loss will be to a considerable extent compensated, as the Jardin des Plantes will receive in a very few days a Boa more than eight yards in length, which has just arrived at Havre. We believe it takes a goat or a sheep to appease its appetite at one time.

A GEOGRAPHICAL Society has been established in Roumania under the patronage of the present Prince. A great want has been felt of such an institution, not a single original work having been written by Roumanians on the geography of their native land. All geographical school-books are merely translations of foreign works, and are all full of errors, even as regards Roumania.

A CORRESPONDENT of the *Pharmaceutical Journal*, Mr. G. C. Druce, suggests whether *Saxifraga tridactylites* is not a carnivorous plant. He states that the glands on the leaves present a very similar appearance to those of *Drosera*, and secrete a viscid fluid on being irritated. In a large number of plants which he examined he found the debris of some insect attached to the leaves.

THE second of a series of industrial exhibitions projected by the Manchester Society for the Promotion of Scientific Industry was opened at Cheetham Hill, Manchester, on Friday last. The present show has been arranged for the special encouragement of appliances for the economy of labour.

A LARGE deposit of amber has been discovered in the Kurische Haff, near the village of Schwarzort, about twelve miles south of Memel. It had been known for many years that amber existed in the soil of the Kurische Haff, from the fact that the dredgers employed by Government for the purpose of clearing away the shallow spots near Schwarzort that impeded navigation had brought up pieces of amber, which, however, were appropriated by the labourers; and no particular attention was paid to the matter till recently. Some speculative persons, reports our Consul at Memel, made an offer to the German Government, not only to do the dredging required at their own expense, but also to pay a daily rent, provided the amber they might find should become their own property. The proposal was accepted, and the rent fixed at twenty-five thalers for each working day. The dredging was commenced by four machines, worked by horses, which have increased in number and efficiency till eighteen other dredges and two tug-boats, with about 100 lighters or barges, employing altogether 1,000 labourers, are now engaged in the industry. The ground covers an area of about six miles in length, and a yearly rent of 72,200 thalers is paid by the company to the Government.

A NEW species of a new genus of serpents, collected by Lieut. Wheeler's expedition in Arizona during the field season of 1874, has just been identified and named by Prof. E. D. Cope. It is called *Monopoma rufipunctatum*. The rostral shield of this new genus resembles that of *Phimothyrus*, and the lateral head shields those of *Cyclophis astutus*. It is, however, more like *Eutania* in general character. This is a very interesting discovery.

FOR some time past the United States steamer *Fortune*, commanded by Commander F. M. Green, has been engaged in the Gulf of Mexico and the West Indies, under the direction of the Hydrographic Office, in determining the latitude and longitude of certain points connected by submarine telegraph. Those so far decided are Panama, Aspinwall, Kingston, Santiago de Cuba, and Havana, in each of which places a portable observatory and astronomical instruments were set up, and numerous observations made. The longitudes were determined by the exchange of telegraphic signals, and the latitudes by the zenith telescope observations. During the course of this work numerous soundings were taken, and a very extensive series of specimens of the sea-bottom brought up. These have been submitted to Prof. Hamilton L. Smith, of Hobart College, Geneva, New York, who finds among them many new species, and others previously considered as very rare, and scarcely met with since their description by Prof. Bailey and others.

THE Manchester Field Naturalists' Society issues a very modest Report for 1874, from which it seems that the Society is doing quiet, steady, satisfactory work; "the working members of the Society have steadily extended their knowledge, and latent taste for Natural History has been fostered and developed." This Society is a field club, and during 1874 had twelve successful excursions, interesting reports of which are given by Mr. F. J. Faraday.

ANOTHER Manchester society, and one that really deserves honourable mention, is that known as the Manchester Scientific Students' Association. From its Annual Report for 1874 it is evident that the Society does much good work in which a comparatively large proportion of the members take part. Their frequent excursions are not mere pleasure-trips, as, besides a leader, a lecturer is appointed, who generally takes up a parti-

cular subject and illustrates it from the observations and gatherings of the day. During the winter meetings are held for the reading of papers, many of which seem of considerable value. This Society was formed for the practical study of science, and on the whole this object appears to be well kept in view.

THE Cambridge Board of Natural Science Studies announce that applications by members of the University desirous of availing themselves of the facilities for study at the Zoological Station at Naples during the ensuing season, are to be sent to Mr. Foster, Trinity College, on or before the 20th of October.

AN appeal is made on behalf of the widow of the late Dr. Beke: that lady, it seems, having been left in very straitened circumstances. It is proposed to utilise the Beke Testimonial Fund for this purpose, and additional subscriptions are requested to be paid to Messrs. Cox, Biddulph, and Co., Charing Cross, or to Messrs. Roberts, Lubbock, and Co., Lombard Street.

WE would draw the special attention of our readers to an excellent new quarto work, abundantly and beautifully illustrated, on "The Marine Mammals of the North-western Coast of North America, together with an account of the American Whale-Fishery," by Capt. Charles M. Scammon. It is published at San Francisco by J. H. Carmany and Co. The figures of the characteristic attitudes of the different species of seals, as well as of the whales, in their native element and otherwise, are far superior to any we have ever seen, having all been evidently taken from the life. The volume is dedicated to the memory of Louis Agassiz.

PROF. SHALER has published a memoir upon the "Antiquity of the Caverns and Cavern Life of the Ohio Valley," in which he endeavours to show the period at which the animal life, so characteristic of Western caverns, received its first expression. He sums up his researches in the following propositions:—1. The extensive development of caverns in the Ohio Valley is probably a comparatively recent phenomenon, not dating further back than the latest Tertiary period. 2. It is doubtful whether there has been any extensive development of cavern life in this region before these caverns of the subcarboniferous limestone began to be excavated. 3. The general character of this cavern life points to the conclusion that it has been derived from the present fauna. 4. The glacial period, though it did not extend the ice-sheet over this cavern region, must have so profoundly affected the climatal conditions that the external life could not have held its place here in the shape we now find it, but must have been replaced by some Arctic assemblage of species. Under the circumstances, it is reasonable to suppose that most, if not all, the species found in these caves have been introduced since the glacial period. 5. We are also warranted by the facts in supposing that there is a continued infusion of "new blood" from the outer species taking place, some of the forms showing the stages of a continual transition from the outer to the inner form.

THE additions to the Zoological Society's Gardens during the past week include a Campbell's Monkey (*Cercopithecus campbelli*) from West Africa, presented by Capt. Damm; a Lesser White-nosed Monkey (*Cercopithecus petaurista*) from West Africa, presented by Mr. John Gordon; a Sloth Bear (*Melursus labiatus*) from Ceylon, presented by Mr. W. D. Wright; two Antarctic Skuas (*Lestris antarctica*) from the Kerguelen Islands, presented by the Rev. A. Eaton; a Proteus (*Proteus anguinus*) from the Adelsberg Caves, presented by Capt. R. F. Burton; a Persian Gazelle (*Gazella subgutturosa*), two Coatis (*Nasua nasica*), born in the Gardens; two Wapiti Deer (*Cervus canadensis*) from North America, an Ocelot (*Felis pardalis*) from South America, a Hoffmann's Sloth (*Choloepus hoffmanni*) from Panama, deposited.

ARCTIC MARINE VEGETATION

NOW that another expedition is about to sail for the Arctic regions through Davis's Straits, it is thought that some notice of the magnificent flora of the shores of Greenland may prove interesting. An essay on this subject,* written in Swedish, by Professor Agardh, the celebrated Swedish algologist, is now before me, but as it is too long for insertion in these pages, I will endeavour to condense as much of it as possible into an abstract.

During the Swedish Expedition to Greenland in 1870, a collection of Algæ was made on the Greenland coast, between Disco Island and Sukkertoppen, some degrees to the southward. These Algæ were afterwards examined by Professor Agardh, and in the essay above mentioned he gives us the result of his examinations, and some exceedingly interesting observations upon the characteristics of the marine flora of this Arctic district. It is not only the more or less numerous species which give to the marine vegetation in different zones a different character, but it is the abundance or scarceness of Algæ, their divarication in a greater or less degree from the common form and aspect, their great size, the multitude of individuals, and so on, which give a very variable appearance to the seaweed-grown shores of different seas.

As in the northern region of the pine-tree, there are but few species, while the masses of forest are formed of an immense number of individuals which grow near together; so with regard to the northern marine flora, the principal portion of which is found to possess a general character, consisting of a few similar species, but, as before mentioned, of an immense number of individuals. Nearest to high-water mark are the species of Fuci; below them are the Laminariæ (Tangles, or seaweeds); these crowd on every rock and stone, and to each of them is attached its peculiar parasitic species. Occasionally, other species, belonging to the northern marine flora, stray into calm bays, inclosed caverns, or are carried away by strong currents. Compared with the weed-covered shores of Southern Europe, the uniformity of aspect on these Arctic shores is very great, and the number of species occurring there fewer than those of our own coasts. The principal characteristic of the vegetation of the colder seas is the gigantic size of the species of which it is composed, and this is especially the case with regard to the northern Algæ. *Laminaria saccharina* and *L. digitata*, *Himantalia*, *Alaria*, *Scytosiphon plum*, &c., on our own coast, give but a feeble indication of what the more Arctic regions in this respect exhibit. When it is known that the Mediterranean and warmer seas contain some few species which from their great size are never found in Herbaria, one can understand how difficult it must be to find specimens suitable for Herbaria among the Arctic species. Professor Agardh lays great stress upon the importance of collecting specimens of these plants in all stages of their growth, and points out the great similarity to each other of young plants of different species, which makes it extremely difficult to discriminate the different species in the young state. The numerous examples, of all ages, brought home by the Swedish expedition, and especially those laid down in salt, could thus be examined in a fresh state, and enough of them might be dissected for the more accurate determination of these large-growing species. As Professor Agardh has referred here to salting down the Algæ, it may be as well to mention that in another publication he has stated that the best way of preserving Algæ is by the following process. In a cask or other convenient vessel put a layer of salt, then a layer of Algæ; then another layer of salt, then another of Algæ, and so on until the cask is full. Algæ thus preserved are found to be almost as fresh as when first taken out of the sea.

If in the extreme north the phanerogamous flora is characterised by dwarf forms, so do forms of an opposite character prevail in the marine vegetation of the Arctic regions. To a certain degree the aspect of the magnificent Arctic marine vegetation depends upon the common large-growing Laminariæ, which constitute a considerable and characteristic portion of it. Laminariæ are also found in the Southern Ocean, and there are even other large Algæ, as, for example, the species of *Iridæa*, in the North Pacific, which have much larger dimensions in colder oceans than have analogous species in the warmer seas. So, also, the great number of species of Laminaria in the Arctic seas is an indication

* Bidrag till kännedomen af Grönlands Laminarier och Fucaceer af J. G. Agardh, inlemnadt till K. Vet. Akad. den 27 Sep. 1871. (Stockholm, 1872, P. A. Norstedt and Söner.)